

REMARKS

This Submission is being filed concurrently with a Request for Continued Examination of this application. Reconsideration of the present application is respectfully requested.

A. Status of the Claims

Claims 1-13 are presented for continued prosecution. Claim amendments have not been made at this time.

B. The Advisory Action

The Examiner maintained the prior art rejections based on the combinations of Anderson (U.S. 4,316,379), Kergen (U.S. 5,477,723), and Cao (U.S. 6,769,280).

Applicants previously argued in the amendment dated February 13, 2007 that the predetermined thickness trend and the control having the stored downholder opening trend of the claimed invention can be determined by performing a trial run prior to deep drawing a new product series (see section 1 beginning on page 7 of the February 13, 2007 amendment). Applicants argued that the claimed predetermined thickness trend and the claimed control having the downholder opening trend are not taught by Kergen.

In the Advisory Action, the Examiner stated that the regulation logic program of Kergen inherently performs a trial run in order to obtain the desired regulation logic. Thus, Applicants prior arguments were not deemed to be persuasive.

Applicants respectfully request reconsideration of the Examiner's position in view of the remarks provided below.

1. The trial run of Kergen is not performed to obtain a predetermined thickness trend or a stored downholder opening trend

As noted by the Examiner, Kergen can perform a trial run. However, the trial run of Kergen measures a different property and is performed for a different purpose than the trial run of the present invention.

The trial run of Kergen is conducted to determine the variation in the blank-holding force that is needed to keep the stamping force (i.e. the force of the punch) at a constant value (see col.

3, lines 45-53 and col. 4, lines 44-46 of Kergen). The information obtained during the trial run of Kergen is identified by curve B in Fig. 3, and is used to help maintain the stamping force at a maximum value so that the punch works with a practically constant force (see col. 3, lines 50-53 of Kergen). Kergen therefore teaches a trial run that obtains a downholder force trend (exemplified by curve B in Fig. 3) which is used to control the stamping force.

The trial run performed by Kergen is different than the trial run performed in the present invention. Kergen performs a trial run to obtain a predetermined downholder force trend which is used to control the stamping force of the apparatus. The predetermined downholder force trend of Kergen relates to a property of the apparatus that operates on the blank, not the blank itself. In contrast to Kergen, the present invention performs a trial run to obtain a predetermined thickness trend of the blank (or derivative thereof) which is used to control the downholder force. The predetermined thickness trend of the invention relates to properties of the blank such as deformity, not a property of the apparatus.

Thus, the trial run performed by Kergen is different than the trial run of the invention. First, the trial run of Kergen obtains a property of the apparatus that operates on the blank, not a property of the blank itself as in the claimed invention. Moreover, the trial run of Kergen obtains a downholder force trend of the apparatus, while the trial run of the present invention obtains a thickness trend of the blank. Kergen therefore does not teach or suggest the predetermined thickness trend of the blank recited in claim 1 or the control that stores the downholder opening trend recited in claims 8 and 13.

Respectfully, Kergen does not teach or suggest the limitations of claim 1, claim 8, or claim 13. It is therefore submitted that claims 1-13 are patentable over the teachings of Kergen in combination with the remaining cited references.

2. Kergen does not teach or suggest a relatively small initial force exerted on the downholder at the beginning of deep drawing

Claim 1 recites that the force exerted by the downholder on the edge of the blank is relatively small at the beginning of deep drawing. Since the downholder force is initially a relatively small value, and is thereafter gradually increased, the downholder force will almost always have the lowest possible value thereby resulting in low frictional forces between the apparatus and the blank. Consequently, the apparatus can be operated with relatively low forces,

relatively little energy, and can be created with a relatively light design. Still further, such low forces reduce the risk of cracks in the blank, and less stringent requirements can be imposed on the starting material (see page 3, lines 8-22 of the application).

In direct contrast to the relatively small initial value recited in claim 1, the trial run illustrated by curve B in Fig. 3 of Kergen begins at a relatively high value, and thereafter decreases. The initially high downholder force of Kergen is in direct contrast to the limitations of claim 1, and as a result, Kergen does not achieve the advantages of the present invention summarized in the above paragraph and described in lines 8-22 on page 3 of the present application.

Applicants therefore respectfully submit that claim 1 is patentable over the teachings of Kergen in combination with the remaining cited references.

3. The trial run of Kergen is performed for a different purpose compared to the trial run of the present invention

As explained in sections 1 and 2 above, the downholder force of claim 1 and the stored downholder opening trend of claims 8 and 13 are controlled on the basis of a predetermined thickness trend of the blank. By considering the thickness trend of the blank, some of the advantages of the invention are that crinkle formation can be prevented, minimal frictional forces are generated between the apparatus and the blank, the apparatus can be operated with relatively low forces, relatively little energy, and can be created with a relatively light design. In addition, such low forces reduce the risk of cracks in the blank, and less stringent requirements can be imposed on the starting material (see page 3, lines 8-22 of the application).

Kergen does not perform a trial run to predetermine the thickness trend of a particular blank as previously explained. On the contrary, the trial run of Kergen is performed to maximize the stamping force of the apparatus in order to minimize the dimensions of the blank (see col. 4, lines 42-53 of Kergen). Kergen therefore does not perform the method of claim 1 which obtains a thickness trend of the blank, and his apparatus does not employ the control of claims 8 and 13 which employ a stored downholder opening trend. It is therefore believed that the claimed invention is patentable.

Applicants note that Kergen briefly mentions crinkle formation in col. 4, line 61 to col. 5, line 18. However, the prevention of crinkle formation mentioned by Kergen is not related to the

performance of a trial run to obtain a thickness trend of the blank. Assuming for argument's sake that Kergen teaches a force profile obtained from a trial run, Kergen still definitely does not teach to control the downholder force on the basis of a predetermined thickness trend as recited in claim 1.

Moreover, col. 4, line 61 to col. 5, line 18 of Kergen teaches away from the present invention, because Kergen explains that the distance between the die and the blank holder increases as soon as crinkles appear (see specifically col. 5, lines 3-5 of Kergen). Such a control strategy will result in a downholder force that is larger than necessary, because this control strategy neglects the thickness trend of the edge of the blank as recited in claim 1. Such teachings lead those in the art away from the claimed invention.

It is therefore respectfully submitted that the present invention is not obvious based on the combination of Kergen and the remaining cited references.

C. Claims 5 and 6

Claims 5 and 6 had been rejected based on the combination of Anderson, Kergen and Cao.

Claims 5 and 6 ultimately depend upon claim 1, and therefore include the limitations of claims 1. As argued above, Kergen does not teach or suggest controlling the downholder based on a predetermined thickness trend and/or a trend or critical value derived therefrom. Applicants therefore respectfully submit that claims 5 and 6 are patentable over the combination of Anderson, Kergen and Cao.

D. Fees

This submission is being filed concurrently with a Request for Continued Examination of this application. The RCE fee is enclosed. In addition, a three month extension of time is hereby requested. No further fees are believed to be due. If, on the other hand, it is determined that further fees are due or any overpayment has been made, the Assistant Commissioner is hereby authorized to debit or credit such sum to Deposit Account No. 02-2275. Pursuant to 37 C.F.R. 1.136(a)(3), please treat this and any concurrent or future reply in this application that requires a petition for an extension of time for its timely submission as incorporating a petition for

extension of time for the appropriate length of time. The fee associated therewith is to be charged to Deposit Account No. 02-2275.

E. Conclusion

In view of the actions taken and arguments presented, it is respectfully submitted that each and every one of the matters raised by the Examiner has been addressed by the present amendment and that the present application is now in condition for allowance.

An early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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